

HERRERA'S FORMULAE ARE NOT NAMES. PROPOSED
DIRECTION SUPPLEMENTARY TO DIRECTION 32.
Z.N.(S.) 2133

By Hobart M. Smith & Rozella B. Smith (*Department of EPO
Biology, University of Colorado, Boulder, Colorado 80309, USA*)

Direction 32 (*Ops. Decls. int. Comm. zool. Nom.* vol. 1(C): 307–328, 1956) placed on the Official Index of Rejected and Invalid Works in Zoological Nomenclature the work implied in Opinion 72, though not there referred to by name. This was the 'Nouvelle nomenclature des êtres organisés et des minéraux' published in instalments between 1901 and 1904 in the *Mem. Soc. scient.* 'Antonio Alzate' by Herrera.

2. This was, however, neither the first nor the only work in which Herrera applied the principles of his 'nouvelle nomenclature', namely to indicate the taxonomic affinities of a genus by adding a prefix or a suffix, or both, to its name. We have found an earlier work in which these principles were applied and have deposited a xerox copy of it in the library of the British Museum (Natural History). The work is a pamphlet entitled *Sinonimia vulgar y científica de los principales vertebrados mexicanos* por A.L. Herrera, Méjico, Oficina Tipográfica de Secretaría de Fomento, 31 pp., 1899.

3. In this rare, separately-published pamphlet, an alphabetically-arranged list of Spanish and Aztec common names of some 489 species of Mexican vertebrates provides scientific name equivalents in a unique form. No other information is given in the work, although a footnote (p.3) acknowledges construction of the list with consultation of the works published in 'La Naturaleza' by Alfredo Dugès, Francisco Sumichrast, José N. Roviroso, and by Herrera himself; of those in the 'Anales del Museo', by Jesús Sánchez; the catalog of the Museo de Tacubaya by Laurencio y Beristain; and the catalogs of the Museo Nacional, again by Herrera. Dr. Herrera was internationally famed and is to the present time a nationally revered biologist in Mexico.

4. The scientific names that appear in this work were given with an abbreviated prefix preceding the generic name, indicating the class-group to which the name belongs; Mam, Ave, Rep, Batr, Pis, respectively indicating Mammalia, Aves, Reptilia, Amphibia and Pisces. Each generic name is given with a *-us* or *-s* termination to indicate that it belongs to the Animal Kingdom. The footnote explanation (p.3) is quite explicit: 'Seguimos la nueva nomen-

clatura; las abreviaturas que preceden á los nombres genéricos, *Mam.*, *Av.*, *Rep.*, *Pis.*, significan Mamífero, Ave, Reptil, Batracio y Pez. La terminación *us* ó *s* indica que es animal.' No other details are given. The described system is used consistently throughout, with infrequent lapses; an exception is the prefix indicating birds, actually Ave, not Av. as stated in the footnote. An example of the names resulting from this procedure is 'Batrspelerpus mexicanus', not given in italics. Indeed, the only italics used were for the Aztec common names, e.g. *Axolotl*, *Aquaquetzpallin*, etc.

5. The list works very simply. Thus, we find '*Axolotl*, v. Ajolote', and under Ajolote we find '*Batramblystomus tigrinus*'. Under 'Castor' we find '*Mamcastorus fiber*'; under '*Coyotl*', 'v. Coyote' and under Coyote, '*Mamcanisus latrans*'; under both '*Chinito*' and '*Coquantototl*' we find 'v. Filomena', and under Filomena '*Aveampelisus cedrorum*'. Herrera was thus adding prefixes and suffixes to generic names (*Castor* becomes Mam castor us; *Ampelis* becomes Av ampelis us) to convert each name into a taxonomic formula.

6. The names at first sight appear to comply with the Code (especially Articles 19 and 33) for availability, if they are considered emendations. Certainly they were deliberately created. Although it is clear that Herrera did not regard the prefixes as a part of the generic name, since he explicitly stated that they precede the generic name, they are printed as parts of the same words and must be treated as integral parts of them. The termination *-us* and *-s*, however, he apparently regarded as a part of the generic name, since often it was substituted for the proper termination; for example, *Ctenosaura* was rendered *Ctenosaurus* in one instance (although as *Ctenosaurus* in two others), and *Imantodes* as *Imantodus*, etc. Furthermore, in a work solely on vertebrates, as this is, no need existed to distinguish animal names from, for example, plant names. The intent, however short-lived, was to introduce a system of uniform endings differing between kingdoms, and uniform prefixes to indicate Classes. We are not aware whether in other works he proposed a parallel system for organisms other than animals, but as a zoologist he probably did not.

7. The 489 scientific names of the most common species of vertebrates in Mexico (no subspecies were mentioned) include 61 of fishes, 8 of amphibians, 54 of reptiles, 310 of birds and 56 of mammals. We have scrutinized the names for herpetozoans in detail, and can confirm that 6 emendations of amphibian generic names were introduced (*Ambystomus*, *Bufous*, *Hyla*, *Rana*, *Spelerpus* and *Syphonopsus*, all preceded by '*Batr*') and 26 reptile generic names (*Ameivas*, *Ancistrodonus*, *Batrachosomus*, *Boaus*, *Bothrops*, *Chelonius*, *Cinosternon*, *Coleonyx*, *Corythophanesus*,

Ctenosaurus, *Ctenosaurus*, *Dipsasus*, *Elapsus*, *Eumeces*, *Eutainius*, *Heloderma*, *Iguana*, *Imantodus*, *Leptophis*, *Oxybelus*, *Phrynosomus*, *Phymatolepis*, *Pityophisus*, *Regina*, *Rena*, *Scotophisus*, all preceded by 'Rep'). If these are regarded as available names, they are all junior synonyms of names in current use. In that case, all 32 emendations constitute a threat to nomenclatural stability, since they (1) could replace their senior synonyms should the latter be discovered to be unavailable; or (2) could be applied to genera or subgenera into which the taxa denoted by the current senior synonyms might be subdivided; or (3) could render invalid any homonym proposed after 1899.

8. The total number of new names in all vertebrate groups created in Herrera's work can be estimated by extrapolation from the amphibian-reptilian names, with 32 in 62. Thus, if the same proportion holds for other groups, there would be 150–160 for birds, 25–30 for mammals, and 30–35 for fishes – a total for all vertebrates of about 237–257 new names. If regarded as available, this body of emendations poses an intolerable threat to nomenclatural stability, completely devoid of taxonomic merit, neglected even by its own author. To deal with the names individually is to impose a totally unrewarding responsibility upon taxonomists, since none of the herpetological names, and presumably none of the others, has been entered in the standard guides to generic names (e.g. Neave, Waterhouse, Scudder, Schulze *et al.*; the latter nevertheless listed Herrera's work in the literature examined).

9. We have considered whether we should ask for this work to be suppressed under the plenary powers. However, having regard to Opinion 72 and Direction 32, and to the fact that the Sixth Draft of the Third Edition of the Code (November 1977) incorporates a provision giving general effect to that combined ruling, we have concluded that it is sufficient to ask for the work to be placed on the Official Index under the ordinary powers of the Commission. The International Commission on Zoological Nomenclature is accordingly requested to place the following work on the Official Index of Rejected and Invalid Works in Zoology with an endorsement that the designations for animals used in that paper are formulae, not names, and accordingly do not enter into zoological nomenclature: Herrera, A.L., 1899, *Sinonimia vulgar y científica de los principales vertebrados mexicanos*, Méjico, Oficina Tipográfica de la Secretaría de Fomento, 31 pp.